

<p>Table 6</p> <p>Genotype Relative Risks for Non-Ashkenazim</p>		
Polymorphism	Heterozygous	Homozygous
Nod2Δ33	1.5	17.6
G908R	2.0	34.5
R702W	2.6	14.3

All publications and patents mentioned in the above specification are herein
 incorporated by reference. Various modifications and variations of the described method
 and system of the invention will be apparent to those skilled in the art without departing
 5 from the scope and spirit of the invention. Although the invention has been described in
 connection with specific preferred embodiments, it should be understood that the
 invention as claimed should not be unduly limited to such specific embodiments. Indeed,
 various modifications of the described modes for carrying out the invention that are
 obvious to those skilled in molecular biology, genetics, or related fields are intended to be
 10 within the scope of the following claims.

SEQUENCE LISTING

15 <110> Nunez, Gabriel
 Inohara, Naohiro
 20 Ogur, Yasunori
 Cho, Judy
 Nicolae, Dan L
 25 Bonen, Denise
 30 <120> NOD2 Nucleic Acids and Proteins

10002974.122601

<130> UM-06646

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<170> PatentIn version 3.1

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15	Pro Leu Ala Leu Pro Leu Glu Ala Ala Thr Cys Lys Lys Tyr Met Ala	210	215	220
20	Lys Leu Arg Thr Thr Val Ser Ala Gln Ser Arg Phe Leu Ser Thr Tyr	225	230	235
25	Asp Gly Ala Glu Thr Leu Cys Leu Glu Asp Ile Tyr Thr Glu Asn Val	245	250	255
30	Leu Glu Val Trp Ala Asp Val Gly Met Ala Gly Pro Pro Gln Lys Ser	260	265	270
35	Pro Ala Thr Leu Gly Leu Glu Glu Leu Phe Ser Thr Pro Gly His Leu	275	280	285
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50	Asp Phe Gln Glu Phe Leu Phe Val Phe Pro Phe Ser Cys Arg Gln Leu	325	330	335
55	Gln Cys Met Ala Lys Pro Leu Ser Val Arg Thr Leu Leu Phe Glu His	340	345	350
60	Cys Cys Trp Pro Asp Val Gly Gln Glu Asp Ile Phe Gln Leu Leu Leu	355	360	365
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40	Met	Tyr	Leu	Leu	Ile	Leu	Gln
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35	Ser	Ile	Pro	Pro 725	Ala	Ala	Pro	Gly	Glu	Ala 730	Lys	Ser	Val	His	Ala 735	Met
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65	Cys	Lys	Ala	Leu 820	Tyr	Leu	Arg	Asp 825	Asn	Asn	Ile	Ser	Asp	Arg 830	Gly	Ile
70	Cys	Lys	Leu 835	Ile	Glu	Cys	Ala	Leu 840	His	Cys	Glu	Gln	Leu 845	Gln	Lys	Leu

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5 Lys Leu Leu Ala Cys Arg Gln Asn Phe Leu Ala Leu Arg Leu Gly Asn
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20 Asp Glu Gly Ala Gln Ala Leu Ala Glu Ala Leu Gly Asp His Gln Ser
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25 Leu Arg Trp Leu Ser Leu Val Gly Asn Asn Ile Gly Ser Val Gly Ala
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30 Gln Ala Leu Ala Leu Met Leu Ala Lys Asn Val Met Leu Glu Glu Leu
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35 Cys Leu Glu Glu Asn His Leu Gln Asp Glu Gly Val Cys Ser Leu Ala
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40 Glu Gly Leu Lys Lys Asn Ser Ser Leu Lys Ile Leu Lys Leu Ser Asn
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45 Asn Cys Ile Thr Tyr Leu Gly Ala Glu Ala Leu Leu Gln Ala Leu Glu
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45 Leu Pro Ile Phe Thr Pro Ser Gln Arg Ala Arg Arg Leu Leu Asp Leu
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50 Ala Thr Val Lys Ala Asn Gly Leu Ala Ala Phe Leu Leu Gln His Val
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Lys Lys Tyr Met Ala Lys Leu Arg Thr Thr Val Ser Ala Gln Ser Arg

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10	Arg	Lys	His	Phe	His	Ser	Ile	Pro	Pro	Ala	Ala	Pro	Gly	Glu	Ala	Lys	
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15	Ser	Val	His	Ala	Met	Pro	Gly	Phe	Ile	Trp	Leu	Ile	Arg	Ser	Leu	Tyr	
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25	Val	Gly	His	Leu	Lys	Leu	Thr	Phe	Cys	Ser	Val	Gly	Pro	Thr	Glu	Cys	
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35	Gln	Leu	Asp	Tyr	Asn	Ser	Val	Gly	Asp	Ile	Gly	Val	Glu	Gln	Leu	Leu	
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				820					825					830			
55	Ala	His	Ser	Met	Ala	Lys	Leu	Leu	Ala	Cys	Arg	Gln	Asn	Phe	Leu	Ala	
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65	Ala	Glu	Gly	Leu	Arg	Gly	Asn	Thr	Ser	Leu	Gln	Phe	Leu	Gly	Phe	Trp	
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10 Gly Ser Val Gly Ala Gln Ala Leu Ala Leu Met Leu Ala Lys Asn Val
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15 Met Leu Glu Glu Leu Cys Leu Glu Glu Asn His Leu Gln Asp Glu Gly
930 935 940

Val Cys Ser Leu Ala Glu Gly Leu Lys Lys Asn Ser Ser Leu Lys Ile
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20 Leu Lys Leu Ser Asn Asn Cys Ile Thr Tyr Leu Gly Ala Glu Ala Leu
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Ala Phe Gln Ala Gln Arg Ser Gln Leu Val Glu Leu Leu Val Ser Gly

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15	Leu Ser His Leu Ala Arg Arg Leu Leu Asp Thr Val Trp Asn Lys Gly 85 90 95		
20	Thr Trp Ala Cys Gln Lys Leu Ile Ala Ala Ala Gln Glu Ala Gln Ala 100 105 110		
25	Asp Ser Gln Ser Pro Lys Leu His Gly Cys Trp Asp Pro His Ser Leu 115 120 125		
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45	Pro Ser Gln Arg Ala Arg Arg Leu Leu Asp Leu Ala Thr Val Lys Ala 180 185 190		
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	Lys Leu Arg Thr Thr Val Ser Ala Gln Ser Arg Phe Leu Ser Thr Tyr 225 230 235 240		
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5	Pro	Ala	Thr	Leu	Gly	Leu	Glu	Glu	Leu	Phe	Ser	Thr	Pro	Gly	His	Leu	275	280	285
10	Asn	Asp	Asp	Ala	Asp	Thr	Val	Leu	Val	Val	Gly	Glu	Ala	Gly	Ser	Gly	290	295	300
15	Lys	Ser	Thr	Leu	Leu	Gln	Arg	Leu	His	Leu	Leu	Trp	Ala	Ala	Gly	Gln	305	310	315
20	Asp	Phe	Gln	Glu	Phe	Leu	Phe	Val	Phe	Pro	Phe	Ser	Cys	Arg	Gln	Leu	325	330	335
25	Gln	Cys	Met	Ala	Lys	Pro	Leu	Ser	Val	Arg	Thr	Leu	Leu	Phe	Glu	His	340	345	350
30	Cys	Cys	Trp	Pro	Asp	Val	Gly	Gln	Glu	Asp	Ile	Phe	Gln	Leu	Leu	Leu	355	360	365
35	Asp	His	Pro	Asp	Arg	Val	Leu	Leu	Thr	Phe	Asp	Gly	Phe	Asp	Glu	Phe	370	375	380
40	Lys	Phe	Arg	Phe	Thr	Asp	Arg	Glu	Arg	His	Cys	Ser	Pro	Thr	Asp	Pro	385	390	395
45	Thr	Ser	Val	Gln	Thr	Leu	Leu	Phe	Asn	Leu	Leu	Gln	Gly	Asn	Leu	Leu	405	410	415
50	Lys	Asn	Ala	Arg	Lys	Val	Val	Thr	Ser	Arg	Pro	Ala	Ala	Val	Ser	Ala	420	425	430
55	Phe	Leu	Arg	Lys	Tyr	Ile	Arg	Thr	Glu	Phe	Asn	Leu	Lys	Gly	Phe	Ser	435	440	445
	Glu	Gln	Gly	Ile	Glu	Leu	Tyr	Leu	Arg	Lys	Arg	His	His	Glu	Pro	Gly	450	455	460
	Val	Ala	Asp	Arg	Leu	Ile	Arg	Leu	Leu	Gln	Glu	Thr	Ser	Ala	Leu	His	465	470	475
	Gly	Leu	Cys	His	Leu	Pro	Val	Phe	Ser	Trp	Met	Val	Ser	Lys	Cys	His	485	490	495

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	Gln	Glu	Leu	Leu	Leu	Gln	Glu	Gly	Gly	Ser	Pro	Lys	Thr	Thr	Thr	Asp	
				500					505						510		
5	Met	Tyr	Leu	Leu	Ile	Leu	Gln	His	Phe	Leu	Leu	His	Ala	Thr	Pro	Pro	
			515					520					525				
10	Asp	Ser	Ala	Ser	Gln	Gly	Leu	Gly	Pro	Ser	Leu	Leu	Arg	Gly	Arg	Leu	
		530					535					540					
15	Pro	Thr	Leu	Leu	His	Leu	Gly	Arg	Leu	Ala	Leu	Trp	Gly	Leu	Gly	Met	
	545					550					555					560	
20	Cys	Cys	Tyr	Val	Phe	Ser	Ala	Gln	Gln	Leu	Gln	Ala	Ala	Gln	Val	Ser	
					565					570					575		
	Pro	Asp	Asp	Ile	Ser	Leu	Gly	Phe	Leu	Val	Arg	Ala	Lys	Gly	Val	Val	
				580					585					590			
25	Pro	Gly	Ser	Thr	Ala	Pro	Leu	Glu	Phe	Leu	His	Ile	Thr	Phe	Gln	Cys	
			595					600					605				
30	Phe	Phe	Ala	Ala	Phe	Tyr	Leu	Ala	Leu	Ser	Ala	Asp	Val	Pro	Pro	Ala	
		610					615					620					
35	Leu	Leu	Arg	His	Leu	Phe	Asn	Cys	Gly	Arg	Pro	Gly	Asn	Ser	Pro	Met	
	625					630					635					640	
40	Ala	Arg	Leu	Leu	Pro	Thr	Met	Cys	Ile	Gln	Ala	Ser	Glu	Gly	Lys	Asp	
					645					650					655		
45	Ser	Ser	Val	Ala	Ala	Leu	Leu	Gln	Lys	Ala	Glu	Pro	His	Asn	Leu	Gln	
				660					665					670			
	Ile	Thr	Ala	Ala	Phe	Leu	Ala	Gly	Leu	Leu	Ser	Arg	Glu	His	Trp	Gly	
			675					680					685				
50	Leu	Leu	Ala	Glu	Cys	Gln	Thr	Ser	Glu	Lys	Ala	Leu	Leu	Arg	His	Gln	
		690					695					700					
55	Ala	Cys	Ala	Arg	Trp	Cys	Leu	Ala	Arg	Ser	Leu	Arg	Lys	His	Phe	His	
	705					710					715					720	

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	Ser	Ile	Pro	Pro	Ala	Ala	Pro	Gly	Glu	Ala	Lys	Ser	Val	His	Ala	Met	
					725					730					735		
5	Pro	Gly	Phe	Ile	Trp	Leu	Ile	Arg	Ser	Leu	Tyr	Glu	Met	Gln	Glu	Glu	
				740					745					750			
10	Arg	Leu	Ala	Arg	Lys	Ala	Ala	Arg	Gly	Leu	Asn	Val	Gly	His	Leu	Lys	
			755					760					765				
15	Leu	Thr	Phe	Cys	Ser	Val	Gly	Pro	Thr	Glu	Cys	Ala	Ala	Leu	Ala	Phe	
		770					775					780					
20	Val	Leu	Gln	His	Leu	Arg	Arg	Pro	Val	Ala	Leu	Gln	Leu	Asp	Tyr	Asn	
		785				790					795					800	
25	Ser	Val	Gly	Asp	Ile	Gly	Val	Glu	Gln	Leu	Leu	Pro	Cys	Leu	Gly	Val	
					805					810					815		
30	Cys	Lys	Ala	Leu	Tyr	Leu	Arg	Asp	Asn	Asn	Ile	Ser	Asp	Arg	Gly	Ile	
				820					825					830			
35	Cys	Lys	Leu	Ile	Glu	Cys	Ala	Leu	His	Cys	Glu	Gln	Leu	Gln	Lys	Leu	
			835					840					845				
40	Ala	Leu	Phe	Asn	Asn	Lys	Leu	Thr	Asp	Gly	Cys	Ala	His	Ser	Met	Ala	
		850					855					860					
45	Lys	Leu	Leu	Ala	Cys	Arg	Gln	Asn	Phe	Leu	Ala	Leu	Arg	Leu	Gly	Asn	
		865				870					875					880	
50	Asn	Tyr	Ile	Thr	Ala	Ala	Gly	Ala	Gln	Val	Leu	Ala	Glu	Gly	Leu	Arg	
					885					890					895		
55	Gly	Asn	Thr	Ser	Leu	Gln	Phe	Leu	Gly	Phe	Trp	Gly	Asn	Arg	Val	Gly	
				900					905					910			
60	Asp	Glu	Gly	Ala	Gln	Ala	Leu	Ala	Glu	Ala	Leu	Gly	Asp	His	Gln	Ser	
			915					920					925				
65	Leu	Arg	Trp	Leu	Ser	Leu	Val	Gly	Asn	Asn	Ile	Gly	Ser	Val	Gly	Ala	
		930					935					940					
70	Gln	Ala	Leu	Ala	Leu	Met	Leu	Ala	Lys	Asn	Val	Met	Leu	Glu	Glu	Leu	

	945	950	955	960
5	Cys Leu Glu Glu Asn His Leu Gln Asp Glu Gly Val Cys Ser Leu Ala	965	970	975
10	Glu Gly Leu Lys Lys Asn Ser Ser Leu Lys Ile Leu Lys Leu Ser Asn	980	985	990
15	Asn Cys Ile Thr Tyr Leu Gly Ala Glu Ala Leu Leu Gln Ala Leu Glu	995	1000	1005
20	Arg Asn Asp Thr Ile Leu Glu Val Trp Leu Arg Gly Asn Thr Phe	1010	1015	1020
25	Ser Leu Glu Glu Val Asp Lys Leu Gly Cys Arg Asp Thr Arg Leu	1025	1030	1035
30	Leu Leu	1040		
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50	<213> Homo sapiens			
55	<400> 5			
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65	Leu Leu Val Ser Gly Ser Leu Glu Gly Phe Glu Ser Val Leu Asp Trp	20	25	30
70	Leu Leu Ser Trp Glu Val Leu Ser Trp Glu Asp Tyr Glu Gly Phe His	35	40	45
75	Leu Leu Gly Gln Pro Leu Ser His Leu Ala Arg Arg Leu Leu Asp Thr	50	55	60
80	Val Trp Asn Lys Gly Thr Trp Ala Cys Gln Lys Leu Ile Ala Ala Ala	65	70	75
85				80

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5 Gln Glu Ala Gln Ala Asp Ser Gln Ser Pro Lys Leu His Gly Cys Trp
85 90 95
Asp
10 <210> 6
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15 <212> PRT
<213> Homo sapiens
20 <400> 6
Ser Leu His Pro Ala Arg Asp Leu Gln Ser His Arg Pro Ala Ile Val
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25 Arg Arg Leu His Ser His Val Glu Asn Met Leu Asp Leu Ala Trp Glu
20 25 30
30 Arg Gly Phe Val Ser Gln Tyr Glu Cys Asp Glu Ile Arg Leu Pro Ile
35 40 45
35 Phe Thr Pro Ser Gln Arg Ala Arg Arg Leu Leu Asp Leu Ala Thr Val
50 55 60
40 Lys Ala Asn Gly Leu Ala Ala Phe Leu Leu Gln His Val Gln Glu Leu
65 70 75 80
Pro Val Pro Leu Ala Leu Pro Leu Glu Ala Ala Thr Cys Lys
85 90
45 <210> 7
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50 <212> PRT
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	Pro	Ala	Thr	Leu	Gly	Leu	Glu	Glu	Leu	Phe	Ser	Thr	Pro	Gly	His	Leu	
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5	Asn	Asp	Asp	Ala	Asp	Thr	Val	Leu	Val	Val	Gly	Glu	Ala	Gly	Ser	Gly	
				20					25					30			
10	Lys	Ser	Thr	Leu	Leu	Gln	Arg	Leu	His	Leu	Leu	Trp	Ala	Ala	Gly	Gln	
			35					40					45				
15	Asp	Phe	Gln	Glu	Phe	Leu	Phe	Val	Phe	Pro	Phe	Ser	Cys	Arg	Gln	Leu	
	50						55					60					
20	Gln	Cys	Met	Ala	Lys	Pro	Leu	Ser	Val	Arg	Thr	Leu	Leu	Phe	Glu	His	
	65					70				75					80		
25	Cys	Cys	Trp	Pro	Asp	Val	Gly	Gln	Glu	Asp	Ile	Phe	Gln	Leu	Leu	Leu	
					85					90				95			
30	Asp	His	Pro	Asp	Arg	Val	Leu	Leu	Thr	Phe	Asp	Gly	Phe	Asp	Glu	Phe	
				100					105					110			
35	Lys	Phe	Arg	Phe	Thr	Asp	Arg	Glu	Arg	His	Cys	Ser	Pro	Thr	Asp	Pro	
			115					120					125				
40	Thr	Ser	Val	Gln	Thr	Leu	Leu	Phe	Asn	Leu	Leu	Gln	Gly	Asn	Leu	Leu	
	130						135					140					
45	Lys	Asn	Ala	Arg	Lys	Val	Val	Thr	Ser	Arg	Pro	Ala	Ala	Val	Ser	Ala	
	145					150				155					160		
50	Phe	Leu	Arg	Lys	Tyr	Ile	Arg	Thr	Glu	Phe	Asn	Leu	Lys	Gly	Phe	Ser	
				165					170						175		
55	Glu	Gln	Gly	Ile	Glu	Leu	Tyr	Leu	Arg	Lys	Arg	His	His	Glu	Pro	Gly	
				180					185					190			
60	Val	Ala	Asp	Arg	Leu	Ile	Arg	Leu	Leu	Gln	Glu	Thr	Ser	Ala	Leu	His	
			195					200					205				
65	Gly	Leu	Cys	His	Leu	Pro	Val	Phe	Ser	Trp	Met	Val	Ser	Lys	Cys	His	
	210						215					220					

Gln Glu Leu Leu Leu Gln Glu Gly Gly Ser Pro Lys Thr Thr Thr Asp
 225 230 235 240

5 Met Tyr Leu Leu Ile Leu Gln His Phe Leu Leu His Ala Thr Pro Pro
 245 250 255

10 Asp Ser Ala Ser Gln Gly Leu Gly Pro Ser Leu Leu Arg Gly Arg Leu
 260 265 270

15 Pro Thr Leu Leu His Leu Gly Arg Leu Ala Leu Trp Gly Leu Gly Met
 275 280 285

Cys Cys Tyr Val Phe Ser Ala Gln Gln Leu Gln Ala Ala Gln Val Ser
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20 Pro
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25 <210> 8

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30 <213> Homo sapiens

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Arg Ser Leu Tyr Glu Met Gln Glu Glu Arg Leu Ala Arg Lys Ala Ala
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40 Arg Gly Leu Asn Val Gly His Leu Lys Leu Thr Phe
 20 25

45 <210> 9

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50 <213> Homo sapiens

55 <400> 9

Cys Ser Val Gly Pro Thr Glu Cys Ala Ala Leu Ala Phe Val Leu Gln

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	1		5		10		15										
5	His	Leu	Arg	Arg	Pro	Val	Ala	Leu	Gln	Leu	Asp	Tyr					
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Cys Arg Gln Asn Phe Leu Ala Leu Arg Leu Gly Asn
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Asn Tyr Ile Thr Ala Ala Gly Ala Gln Val Leu Ala Glu Gly Leu Arg
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Gly Asn Thr Ser Leu Gln Phe Leu Gly Phe Trp Gly
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Asn Arg Val Gly Asp Glu Gly Ala Gln Ala Leu Ala Glu Ala Leu Gly
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Asp His Gln Ser Leu Arg Trp Leu Ser Leu Val Gly
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Asn Asn Ile Gly Ser Val Gly Ala Gln Ala Leu Ala Leu Met Leu Ala
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Lys Asn Val Met Leu Glu Glu Leu Cys Leu Glu Glu
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Asn His Leu Gln Asp Glu Gly Val Cys Ser Leu Ala Glu Gly Leu Lys
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Lys Asn Ser Ser Leu Lys Ile Leu Lys Leu Ser Asn
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<213> Homo sapiens

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Asn Cys Ile Thr Tyr Leu Gly Ala Glu Ala Leu Leu Gln Ala Leu Glu
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Arg Asn Asp Thr Ile Leu Glu Val Trp Leu Arg Gly
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   1                    5

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45 Val Thr His Ile Arg Asn Thr Gln Cys Leu Val Asp Asn Leu Leu Lys
   20                    25                    30

50 Asn Asp Tyr Phe Ser Ala Glu Asp Ala Glu Ile Val Cys Ala Cys Pro
   35                    40                    45

55 Thr Gln Pro Asp Lys Val Arg Lys Ile Leu Asp Leu Val Gln Ser Lys
   50                    55                    60

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Gly Glu Glu Val Ser Glu Phe Phe Leu Tyr Leu Leu Gln Gln Leu Ala
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Asp Ala Tyr Val Asp Leu Arg Pro Trp Leu Leu Glu
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Gly Ile Ala Gln Gln Trp Ile Gln Ser Lys Arg Glu Asp Ile Val Asn
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Gln Met Thr Glu Ala Cys Leu Asn Gln Ser Leu Asp Ala Leu Leu Ser
20 25 30

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Arg Asp Leu Ile Met Lys Glu Asp Tyr Glu Leu Val Ser Thr Lys Pro
35 40 45

35

Thr Arg Thr Ser Lys Val Arg Gln Leu Leu Asp Thr Thr Asp Ile Gln
50 55 60

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Gly Glu Glu Phe Ala Lys Val Ile Val Gln Lys Leu Lys Asp Asn Lys
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Gln Met Gly Leu Gln Pro Tyr Pro Glu Ile Leu Val
85 90

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 5 Thr Leu Gln Ala Asp Ser Gly Leu Leu Leu Asp Ala Leu Val Ala Arg
 20 25 30
 10 Gly Val Leu Thr Gly Pro Glu Tyr Glu Ala Leu Asp Ala Leu Pro Asp
 35 40 45
 Ala Glu Arg Arg Val Arg Arg Leu Leu Leu Leu Val Gln Ser Lys Gly
 50 55 60
 15 Glu Ala Ala Cys Gln Glu Leu Leu Arg Cys Ala Gln Gln Thr Val Ser
 65 70 75 80
 20 Met Pro Asp Pro Ala Trp Asp Trp Gln His Val Gly Pro
 85 90
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 40 Gly Ala Glu Val Leu Val Glu Gly Leu Val Leu Gln Tyr Leu Tyr Gln
 20 25 30
 45 Glu Gly Ile Leu Thr Glu Asn His Ile Gln Glu Ile Asn Ala Gln Thr
 35 40 45
 50 Thr Gly Leu Arg Lys Thr Met Leu Leu Leu Asp Ile Leu Pro Ser Arg
 50 55 60
 Gly Pro Lys Ala Phe Asp Thr Phe Leu Asp Ser Leu Gln Glu Phe Pro
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 55 Trp Val Arg Glu Lys Leu Lys Lys Ala Arg Glu Glu Ala Met

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20 Ala Lys Gln Leu Leu Leu Ser Glu Leu Leu Glu His Leu Leu Glu Lys
20 25 30

25 Asp Ile Ile Thr Leu Glu Met Arg Glu Leu Ile Gln Ala Lys Val Gly
35 40 45

30 Ser Phe Ser Gln Asn Val Glu Leu Leu Asn Leu Leu Pro Lys Arg Gly
50 55 60

Pro Gln Ala Phe Asp Ala Phe Cys Glu Ala Leu Arg Glu Thr Lys Gln
65 70 75 80

35 Gly His Leu Glu Asp Met Leu Leu Thr Thr Leu
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Met Arg Gln Asp Arg Arg Ser Leu Leu Glu Arg Asn Ile Met Met Phe
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Ser Ser His Leu Lys Val Asp Glu Ile Leu Glu Val Leu Ile Ala Lys
20 25 30

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5 Gln Val Leu Asn Ser Asp Asn Gly Asp Met Ile Asn Ser Cys Gly Thr
35 40 45

10 Val Arg Glu Lys Arg Arg Glu Ile Val Lys Ala Val Gln Arg Arg Gly
50 55 60

15 Asp Val Ala Phe Asp Ala Phe Tyr Asp Ala Leu Arg Ser Thr Gly His
65 70 75 80

15 Glu Gly Leu Ala Glu Val Leu Glu Pro Leu Ala
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35 Ile His Asp Phe Glu Pro Arg Asp Ala Leu Thr Tyr Leu Glu Gly Lys
20 25 30

40 Asn Ile Phe Thr Glu Asp His Ser Glu Leu Ile Ser Lys Met Ser Thr
35 40 45

45 Arg Leu Glu Arg Ile Ala Asn Phe Leu Arg Ile Tyr Arg Arg Gln Ala
50 55 60

50 Ser Glu Leu Gly Pro Leu Ile Asp Phe Phe Asn Tyr Asn Asn Gln Ser
65 70 75 80

50 His Leu Ala Asp Phe Leu Glu Asp Tyr Ile
85 90

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Met Asp Glu Ala Asp Arg Arg Leu Leu Arg Arg Cys Arg Leu Arg Leu
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15 Val Glu Glu Leu Gln Val Asp Gln Leu Trp Asp Val Leu Leu Ser Arg
20 25 30

20 Glu Leu Phe Arg Pro His Met Ile Glu Asp Ile Gln Arg Ala Gly Ser
35 40 45

25 Gly Ser Arg Arg Asp Gln Ala Arg Gln Leu Ile Ile Asp Leu Glu Thr
50 55 60

Arg Gly Ser Gln Ala Leu Pro Leu Phe Ile Ser Cys Leu Glu Asp Thr
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30 Gly Gln Asp Met Leu Ala Ser Phe Leu Arg Thr Asn Arg
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35 <210> 28

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<213> Homo sapiens

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Met Asp Ala Lys Ala Arg Asn Cys Leu Leu Gln His Arg Glu Ala Leu
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Glu Lys Asp Ile Lys Thr Ser Tyr Ile Met Asp His Met Ile Ser Asp
20 25 30

55 Gly Phe Leu Thr Ile Ser Glu Glu Glu Lys Val Arg Asn Glu Pro Thr
35 40 45

Gln Gln Gln Arg Ala Ala Met Leu Ile Lys Met Ile Leu Lys Lys Asp
 50 55 60

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Asn Asp Ser Tyr Val Ser Phe Tyr Asn Ala Leu Leu His Glu Gly Tyr
 65 70 75 80

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Lys Asp Leu Ala Ala Leu Leu His Asp Gly Ile Pro Val
 85 90

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Met Ala Ser Asp Asp Leu Ser Leu Ile Arg Lys Asn Arg Met Ala Leu
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Phe Gln Gln Leu Thr Cys Val Leu Pro Ile Leu Asp Asn Leu Leu Lys
 20 25 30

35

Ala Asn Val Ile Asn Lys Gln Glu His Asp Ile Ile Lys Gln Lys Thr
 35 40 45

40

Gln Ile Pro Leu Gln Ala Arg Glu Leu Ile Asp Thr Ile Trp Val Lys
 50 55 60

Gly Asn Ala Ala Ala Asn Ile Phe Lys Asn Cys Leu Lys Glu Ile Asp
 65 70 75 80

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Ser Thr Leu Tyr Lys Asn Leu Phe Val Asp Lys Asn
 85 90

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<213> Homo sapiens

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15 Asp Ala Gly Val Gly Lys Ser Met Leu Leu Gln Arg Leu Gln Ser Leu
35 40 45

20 Trp Ala Thr Gly Arg Leu Asp Ala Gly Val Lys Phe Phe Phe His Phe
50 55 60

25 Arg Cys Arg Met Phe Ser Cys Phe Lys Glu Ser Asp Arg Leu Cys Leu
65 70 75 80

30 Gln Asp Leu Leu Phe Lys His Tyr Cys Tyr Pro Glu Arg Asp Pro Glu
85 90 95

35 Glu Val Phe Ala Phe Leu Leu Arg Phe Pro His Val Ala Leu Phe Thr
100 105 110

40 Phe Asp Gly Leu Asp Glu Leu His Ser Asp Leu Asp Leu Ser Arg Val
115 120 125

45 Pro Asp Ser Ser Cys Pro Trp Glu Pro Ala His Pro Leu Val Leu Leu
130 135 140

50 Ala Asn Leu Leu Ser Gly Lys Leu Leu Lys Gly Ala Ser Lys Leu Leu
145 150 155 160

55 Thr Ala Arg Thr Gly Ile Glu Val Pro Arg Gln Phe Leu Arg Lys Lys
165 170 175

Val Leu Leu Arg Gly Phe Ser Pro Ser His Leu Arg Ala Tyr Ala Arg
180 185 190

Arg Met Phe Pro Glu Arg Ala Leu Gln Asp Arg Leu Leu Ser Gln Leu
195 200 205

Glu Ala Asn Pro Asn Leu Cys Ser Leu Cys Ser Val Pro Leu Phe Cys

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10	Ser Pro Gln Leu Pro Asp Cys Thr Met Thr Leu Thr Asp Val Phe Val 245 250 255		
15	Leu Val Thr Glu Val His Leu Asn Arg Met Gln Pro Ser Ser Leu Val 260 265 270		
20	Gln Arg Asn Thr Arg Ser Pro Val Glu Thr Leu His Ala Gly Arg Asp 275 280 285		
25	Thr Leu Cys Ser Leu Gly Gln Val Ala His Arg Gly Met Glu Lys Ser 290 295 300		
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50	Met Ala Gly Cys Gly Lys Ser Val Leu Ala Ala Glu Ala Val Arg Asp 35 40 45		
55	His Ser Leu Leu Glu Gly Cys Phe Pro Gly Gly Val His Trp Val Ser 50 55 60		
	Val Gly Lys Gln Asp Lys Ser Gly Leu Leu Met Lys Leu Gln Asn Leu 65 70 75 80		

10002974-100001

5	Cys Thr Arg Leu Asp Gln Asp Glu Ser Phe Ser Gln Arg Leu Pro Leu	85	90	95
10	Asn Ile Glu Glu Ala Lys Asp Arg Leu Arg Ile Leu Met Leu Arg Lys	100	105	110
15	His Pro Arg Ser Leu Leu Ile Leu Asp Asp Val Trp Asp Ser Trp Val	115	120	125
20	Leu Lys Ala Phe Asp Ser Gln Cys Gln Ile Leu Leu Thr Thr Arg Asp	130	135	140
25	Lys Ser Val Thr Asp Ser Val Met Gly Pro Lys Tyr Val Val Pro Val	145	150	155
30	Glu Ser Ser Leu Gly Lys Glu Lys Gly Leu Glu Ile Leu Ser Leu Phe	165	170	175
35	Val Asn Met Lys Lys Ala Asp Leu Pro Glu Gln Ala His Ser Ile Ile	180	185	190
40	Lys Glu Cys Lys Gly Ser Pro Leu Val Val Ser Leu Ile Gly Ala Leu	195	200	205
45	Leu Arg Asp Phe Pro Asn Arg Trp Glu Tyr Tyr Leu Lys Gln Leu Gln	210	215	220
50	Asn Lys Gln Phe Lys Arg Ile Arg Lys Ser Ser Ser Tyr Asp Tyr Glu	225	230	235
55	Ala Leu Asp Glu Ala Met Ser Ile Ser Val Glu Met Leu Arg Glu Asp	245	250	255
60	Ile Lys Asp Tyr Tyr Thr Asp Leu Ser Ile Leu Gln Lys Asp Val Lys	260	265	270
65	Val Pro Thr Lys Val Leu Cys Ile Leu Trp Asp Met Glu Thr Glu Glu	275	280	285
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Arg Ala Gly Ser Gly Lys Ser Val Ile Ala Ser Gln Ala Leu Ser Lys
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Ser Asp Gln Leu Ile Gly Ile Asn Tyr Asp Ser Ile Val Trp Leu Lys
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Asp Ser Gly Thr Ala Pro Lys Ser Thr Phe Asp Leu Phe Thr Asp Ile
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Leu Leu Met Leu Lys Ser Glu Asp Asp Leu Leu Asn Phe Pro Ser Val
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Ile Asp Arg Pro Asn Thr Leu Phe Val Phe Asp Asp Val Val Gln Glu
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Glu Thr Ile Arg Trp Ala Gln Glu Leu Arg Leu Arg Cys Leu Val Thr
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Thr Arg Asp Val Glu Ile Ser Asn Ala Ala Ser Gln Thr Cys Glu Phe
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10002974-100601

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5 Ala Tyr Gly Met Pro Met Pro Val Gly Glu Lys Glu Glu Asp Val Leu
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15 Phe Phe Lys Ser Cys Glu Pro Lys Thr Phe Glu Lys Met Ala Gln Leu
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25 Val Leu Ser Asp Glu Asp Arg Ser Ala Leu Ala Phe Ala Val Val Met
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30 Pro Pro Gly Val Asp Ile Pro Val Lys Leu Trp Ser Cys Val Ile Pro
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5	Lys	Ser	Thr	Leu	Leu	Gln	Arg	Leu	His	Leu	Leu	Trp	Ala	Ala	Gly	Gln	
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15	Gln	Cys	Met	Ala	Lys	Pro	Leu	Ser	Val	Arg	Thr	Leu	Leu	Phe	Glu	His	
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20	Cys	Cys	Trp	Pro	Asp	Val	Gly	Gln	Glu	Asp	Ile	Phe	Gln	Leu	Leu	Leu	
			355					360					365				
25	Asp	His	Pro	Asp	Arg	Val	Leu	Leu	Thr	Phe	Asp	Gly	Phe	Asp	Glu	Phe	
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30	Lys	Phe	Arg	Phe	Thr	Asp	Arg	Glu	Arg	His	Cys	Ser	Pro	Thr	Asp	Pro	
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40	Lys	Asn	Ala	Arg	Lys	Val	Val	Thr	Ser	Arg	Pro	Ala	Ala	Val	Ser	Ala	
				420					425					430			
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			435					440					445				
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	450						455					460					
55	Val	Ala	Asp	Arg	Leu	Ile	Arg	Leu	Leu	Gln	Glu	Thr	Ser	Ala	Leu	His	
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					485					490					495		
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10	Pro	Thr	Leu	Leu	His	Leu	Gly	Arg	Leu	Ala	Leu	Trp	Gly	Leu	Gly	Met	
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15	Cys	Cys	Tyr	Val	Phe	Ser	Ala	Gln	Gln	Leu	Gln	Ala	Ala	Gln	Val	Ser	
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20	Pro	Asp	Asp	Ile	Ser	Leu	Gly	Phe	Leu	Val	Arg	Ala	Lys	Gly	Val	Val	
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15	Val Leu Gln His Leu Arg Arg Pro Val	Ala Leu Gln Leu Asp Tyr Asn	
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45	Asn Tyr Ile Thr Ala Ala Gly Ala Gln Val Leu Ala Glu Gly Leu Arg		
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		930	935 940
65	Gln Ala Leu Ala Leu Met Leu Ala Lys Asn Val Met Leu Glu Glu Leu		
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Glu Gly Leu Lys Lys Asn Ser Ser Leu Lys Ile Leu Lys Leu Ser Asn
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5 <213> Homo sapiens

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20	Ala Cys Ala Arg Trp Cys Leu Ala Arg Ser Leu Arg Lys His Phe His 705 710 715 720		
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40	Leu Thr Phe Cys Ser Val Gly Pro Thr Glu Cys Ala Ala Leu Ala Phe 770 775 780		
45	Val Leu Gln His Leu Arg Arg Pro Val Ala Leu Gln Leu Asp Tyr Asn 785 790 795 800		
50	Ser Val Gly Asp Ile Gly Val Glu Gln Leu Leu Pro Cys Leu Gly Val 805 810 815		
55	Cys Lys Ala Leu Tyr Leu Arg Asp Asn Asn Ile Ser Asp Arg Gly Ile 820 825 830		
	Cys Lys Leu Ile Glu Cys Ala Leu His Cys Glu Gln Leu Gln Lys Leu 835 840 845		
	Ala Leu Phe Asn Asn Lys Leu Thr Asp Gly Cys Ala His Ser Met Ala 850 855 860		
	Lys Leu Leu Ala Cys Arg Gln Asn Phe Leu Ala Leu Arg Leu Gly Asn 865 870 875 880		

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 15 Leu Arg Trp Leu Ser Leu Val Gly Asn Asn Ile Gly Ser Val Gly Ala
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 20 Gln Ala Leu Ala Leu Met Leu Ala Lys Asn Val Met Leu Glu Glu Leu
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 30 Asn Cys Ile Thr Tyr Leu Gly Ala Glu Ala Leu Leu Gln Ala Leu Glu
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25	Pro Gly Phe Ile Trp Leu Ile Arg Ser Leu Tyr Glu Met Gln Glu Glu 740 745 750		
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35	Leu Thr Phe Cys Ser Val Gly Pro Thr Glu Cys Ala Ala Leu Ala Phe 770 775 780		
40	Val Leu Gln His Leu Arg Arg Pro Val Ala Leu Gln Leu Asp Tyr Asn 785 790 795 800		
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10002974-102601

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15	Ser Leu Glu Gly Phe Glu Ser Val Leu Asp Trp Leu Leu Ser Trp Glu	50	55	60	
20	Val Leu Ser Trp Glu Asp Tyr Glu Gly Phe His Leu Leu Gly Gln Pro	65	70	75	80
	Leu Ser His Leu Ala Arg Arg Leu Leu Asp Thr Val Trp Asn Lys Gly	85	90	95	
25	Thr Trp Ala Cys Gln Lys Leu Ile Ala Ala Ala Gln Glu Ala Gln Ala	100	105	110	
30	Asp Ser Gln Ser Pro Lys Leu His Gly Cys Trp Asp Pro His Ser Leu	115	120	125	
35	His Pro Ala Arg Asp Leu Gln Ser His Arg Pro Ala Ile Val Arg Arg	130	135	140	
40	Leu His Ser His Val Glu Asn Met Leu Asp Leu Ala Trp Glu Arg Gly	145	150	155	160
	Phe Val Ser Gln Tyr Glu Cys Asp Glu Ile Arg Leu Pro Ile Phe Thr	165	170	175	
45	Pro Ser Gln Arg Ala Arg Arg Leu Leu Asp Leu Ala Thr Val Lys Ala	180	185	190	
50	Asn Gly Leu Ala Ala Phe Leu Leu Gln His Val Gln Glu Leu Pro Val	195	200	205	
55	Pro Leu Ala Leu Pro Leu Glu Ala Ala Thr Cys Lys Lys Tyr Met Ala	210	215	220	

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	Lys	Leu	Arg	Thr	Thr	Val	Ser	Ala	Gln	Ser	Arg	Phe	Leu	Ser	Thr	Tyr	225	230	235		240
5	Asp	Gly	Ala	Glu	Thr	Leu	Cys	Leu	Glu	Asp	Ile	Tyr	Thr	Glu	Asn	Val		245	250		255
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15	Pro	Ala	Thr	Leu	Gly	Leu	Glu	Glu	Leu	Phe	Ser	Thr	Pro	Gly	His	Leu		275	280		285
20	Asn	Asp	Asp	Ala	Asp	Thr	Val	Leu	Val	Val	Gly	Glu	Ala	Gly	Ser	Gly	290		295		300
25	Lys	Ser	Thr	Leu	Leu	Gln	Arg	Leu	His	Leu	Leu	Trp	Ala	Ala	Gly	Gln	305		310		315
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35	Gln	Cys	Met	Ala	Lys	Pro	Leu	Ser	Val	Arg	Thr	Leu	Leu	Phe	Glu	His		340	345		350
40	Cys	Cys	Trp	Pro	Asp	Val	Gly	Gln	Glu	Asp	Ile	Phe	Gln	Leu	Leu	Leu		355	360		365
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55	Thr	Ser	Val	Gln	Thr	Leu	Leu	Phe	Asn	Leu	Leu	Gln	Gly	Asn	Leu	Leu		405	410		415
	Lys	Asn	Ala	Arg	Lys	Val	Val	Thr	Ser	Arg	Pro	Ala	Ala	Val	Ser	Ala		420	425		430
	Phe	Leu	Arg	Lys	Tyr	Ile	Arg	Thr	Glu	Phe	Asn	Leu	Lys	Gly	Phe	Ser		435	440		445
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15	Gln 500	Glu 505	Leu 510	Asp 510
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25	Asp 530	Ser 535	Ala 540	Arg 540
30	Pro 545	Thr 550	Leu 555	Met 560
35	Cys 565	Cys 570	Tyr 575	Ser 575
40	Pro 580	Asp 585	Asp 590	Val 590
45	Pro 595	Gly 600	Ser 605	Cys 605
50	Phe 610	Phe 615	Ala 620	Ala 620
55	Leu 625	Leu 630	Arg 635	Met 640
	Ala 645	Arg 650	Leu 655	Asp 655
	Ser 660	Ser 665	Val 670	Gln 670
	Ile 675	Thr 680	Ala 685	Gly 685

1000294 102604

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 15 Ser Ile Pro Pro Ala Ala Pro Gly Glu Ala Lys Ser Val His Ala Met
 725 730 735
 20 Arg Leu Ala Arg Lys Ala Ala Arg Gly Leu Asn Val Gly His Leu Lys
 755 760 765
 25 Leu Thr Phe Cys Ser Val Gly Pro Thr Glu Cys Ala Ala Leu Ala Phe
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 30 Val Leu Gln His Leu Arg Arg Pro Met Ala Leu Gln Leu Asp Tyr Asn
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 850 855 860
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 55 Asn Tyr Ile Thr Ala Ala Gly Ala Gln Val Leu Ala Glu Gly Leu Arg
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10002974.102601

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915 920 925

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930 935 940

10
Gln Ala Leu Ala Leu Met Leu Ala Lys Asn Val Met Leu Glu Glu Leu
945 950 955 960

15
Cys Leu Glu Glu Asn His Leu Gln Asp Glu Gly Val Cys Ser Leu Ala
965 970 975

20
Glu Gly Leu Lys Lys Asn Ser Ser Leu Lys Ile Leu Lys Leu Ser Asn
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Asn Cys Ile Thr Tyr Leu Gly Ala Glu Ala Leu Leu Gln Ala Leu Glu
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Arg Asn Asp Thr Ile Leu Glu Val Trp Leu Arg Gly Asn Thr Phe
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100022974-102601

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10	Ser	Leu	Glu	Gly	Phe	Glu	Ser	Val	Leu	Asp	Trp	Leu	Leu	Ser	Trp	Glu
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10002974 102601

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15	Asn Asp Asp Ala Asp Thr Val Leu Val Val Gly Glu Ala Gly Ser Gly 290 295 300		
20	Lys Ser Thr Leu Leu Gln Arg Leu His Leu Leu Trp Ala Ala Gly Gln 305 310 315 320		
25	Asp Phe Gln Glu Phe Leu Phe Val Phe Pro Phe Ser Cys Arg Gln Leu 325 330 335		
30	Gln Cys Met Ala Lys Pro Leu Ser Val Arg Thr Leu Leu Phe Glu His 340 345 350		
35	Cys Cys Trp Pro Asp Val Gly Gln Glu Asp Ile Phe Gln Leu Leu Leu 355 360 365		
40	Asp His Pro Asp Arg Val Leu Leu Thr Phe Asp Gly Phe Asp Glu Phe 370 375 380		
45	Lys Phe Arg Phe Thr Asp Arg Glu Arg His Cys Ser Pro Thr Asp Pro 385 390 395 400		
50	Thr Ser Val Gln Thr Leu Leu Phe Asn Leu Leu Gln Gly Asn Leu Leu 405 410 415		
55	Lys Asn Ala Arg Lys Val Val Thr Ser Arg Pro Ala Ala Val Ser Ala 420 425 430		
60	Phe Leu Arg Lys Tyr Ile Arg Thr Glu Phe Asn Leu Lys Gly Phe Ser 435 440 445		
65	Glu Gln Gly Ile Glu Leu Tyr Leu Arg Lys Arg His His Glu Pro Gly 450 455 460		
70	Val Ala Asp Arg Leu Ile Arg Leu Leu Gln Glu Thr Ser Ala Leu His 465 470 475 480		

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20	Asp	Ser	Ala	Ser	Gln	Gly	Leu	Gly	Pro	Ser	Leu	Leu	Arg	Gly	Arg	Leu
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25	Pro	Thr	Leu	Leu	His	Leu	Gly	Arg	Leu	Ala	Leu	Trp	Gly	Leu	Gly	Met
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30	Cys	Cys	Tyr	Val	Phe	Ser	Ala	Gln	Gln	Leu	Gln	Ala	Ala	Gln	Val	Ser
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10002974-103001

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15	Arg Leu Ala Arg Lys Ala Ala Arg Gly Leu Asn Val Gly His Leu Lys	755	760	765	
20	Leu Thr Phe Cys Ser Val Gly Pro Thr Glu Cys Ala Ala Leu Ala Phe	770	775	780	
25	Val Leu Gln His Leu Arg Arg Pro Val Ala Leu Gln Leu Asp Tyr Asn	785	790	795	800
30	Ser Val Gly Asp Ile Gly Val Glu Gln Leu Leu Pro Cys Leu Gly Val	805	810	815	
35	Cys Lys Ala Leu Tyr Leu Arg Asp Asn Asn Ile Ser Asp Arg Gly Ile	820	825	830	
40	Cys Lys Leu Ile Glu Cys Ala Leu His Cys Glu Gln Leu Gln Lys Leu	835	840	845	
45	Ala Leu Phe Ser Asn Lys Leu Thr Asp Gly Cys Ala His Ser Met Ala	850	855	860	
50	Lys Leu Leu Ala Cys Arg Gln Asn Phe Leu Ala Leu Arg Leu Gly Asn	865	870	875	880
55	Asn Tyr Ile Thr Ala Ala Gly Ala Gln Val Leu Ala Glu Gly Leu Arg	885	890	895	
	Gly Asn Thr Ser Leu Gln Phe Leu Gly Phe Trp Gly Asn Arg Val Gly	900	905	910	
	Asp Glu Gly Ala Gln Ala Leu Ala Glu Ala Leu Gly Asp His Gln Ser	915	920	925	

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10 Cys Leu Glu Glu Asn His Leu Gln Asp Glu Gly Val Cys Ser Leu Ala
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15 Glu Gly Leu Lys Lys Asn Ser Ser Leu Lys Ile Leu Lys Leu Ser Asn
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15 Leu Ser His Leu Ala Arg Arg Leu Leu Asp Thr Val Trp Asn Lys Gly
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25 Asp Ser Gln Ser Pro Lys Leu His Gly Cys Trp Asp Pro His Ser Leu
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5 Pro Ala Thr Leu Gly Leu Glu Glu Leu Phe Ser Thr Pro Gly His Leu
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25 Gln Cys Met Ala Lys Pro Leu Ser Val Arg Thr Leu Leu Phe Glu His
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35 Asp His Pro Asp Arg Val Leu Leu Thr Phe Asp Gly Phe Asp Glu Phe
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70 Gly Leu Cys His Leu Pro Val Phe Ser Trp Met Val Ser Lys Cys His
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55 Ser Leu Glu Gly Phe Glu Ser Val Leu Asp Trp Leu Leu Ser Trp Glu
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5 Val Leu Ser Trp Glu Asp Tyr Glu Gly Phe His Leu Leu Gly Gln Pro
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Leu Ser His Leu Ala Arg Arg Leu Leu Asp Thr Val Trp Asn Lys Gly
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10 Thr Trp Ala Cys Gln Lys Leu Ile Ala Ala Ala Gln Glu Ala Gln Ala
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15 Asp Ser Gln Ser Pro Lys Leu His Gly Cys Trp Asp Pro His Ser Leu
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20 His Pro Ala Arg Asp Leu Gln Ser His Arg Pro Ala Ile Val Arg Arg
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25 Leu His Ser His Val Glu Asn Met Leu Asp Leu Ala Trp Glu Arg Gly
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Phe Val Ser Gln Tyr Glu Cys Asp Glu Ile Arg Leu Pro Ile Phe Thr
165 170 175

30 Pro Ser Gln Arg Ala Arg Arg Leu Leu Asp Leu Ala Thr Val Lys Ala
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Ser Leu Glu Gly Phe Glu Ser Val Leu Asp Trp Leu Leu Ser Trp Glu
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Val Leu Ser Trp Glu Asp Tyr Glu Gly Phe His Leu Leu Gly Gln Pro
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10002974-102604

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15	Asp Gly Ala Glu Thr Leu Cys Leu Glu Asp Ile Tyr Thr Glu Asn Val	245	250	255
20	Leu Glu Val Trp Ala Asp Val Gly Met Ala Gly Ser Pro Gln Lys Ser	260	265	270
25	Pro Ala Thr Leu Gly Leu Glu Glu Leu Phe Ser Thr Pro Gly His Leu	275	280	285
30	Asn Asp Asp Ala Asp Thr Val Leu Val Val Gly Glu Ala Gly Ser Gly	290	295	300
35	Lys Ser Thr Leu Leu Gln Arg Leu His Leu Leu Trp Ala Ala Gly Gln	305	310	315
40	Asp Phe Gln Glu Phe Leu Phe Val Phe Pro Phe Ser Cys Arg Gln Leu	325	330	335
45	Gln Cys Met Ala Lys Pro Leu Ser Val Arg Thr Leu Leu Phe Glu His	340	345	350
50	Cys Cys Trp Pro Asp Val Gly Gln Glu Asp Ile Phe Gln Leu Leu Leu	355	360	365
55	Asp His Pro Asp Arg Val Leu Leu Thr Phe Asp Gly Phe Asp Glu Phe	370	375	380
	Lys Phe Arg Phe Thr Asp Arg Glu Arg His Cys Ser Pro Thr Asp Pro	385	390	395
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<213> Homo sapiens

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Ser Leu Glu Gly Phe Glu Ser Val Leu Asp Trp Leu Leu Ser Trp Glu
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Val Leu Ser Trp Glu Asp Tyr Glu Gly Phe His Leu Leu Gly Gln Pro
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Leu Ser His Leu Ala Arg Arg Leu Leu Asp Thr Val Trp Asn Lys Gly
85 90 95

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Thr Trp Ala Cys Gln Lys Leu Ile Ala Ala Ala Gln Glu Ala Gln Ala
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Asp Ser Gln Ser Pro Lys Leu His Gly Cys Trp Asp Pro His Ser Leu
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His Pro Ala Arg Asp Leu Gln Ser His Arg Pro Ala Ile Val Arg Arg
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Leu His Ser His Val Glu Asn Met Leu Asp Leu Ala Trp Glu Arg Gly
145 150 155 160

Phe Val Ser Gln Tyr Glu Cys Asp Glu Ile Arg Leu Pro Ile Phe Thr
165 170 175

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Pro Ser Gln Arg Ala Arg Arg Leu Leu Asp Leu Ala Thr Val Lys Ala
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Asn Gly Leu Ala Ala Phe Leu Leu Gln His Val Gln Glu Leu Pro Val
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10002974-100001

10002974-102601

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15	Leu	Glu	Val	Trp	Ala	Asp	Val	Gly	Met	Ala	Gly	Ser	Pro	Gln	Lys	Ser	
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20	Pro	Ala	Thr	Leu	Gly	Leu	Glu	Glu	Leu	Phe	Ser	Thr	Pro	Gly	His	Leu	
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35	Gln	Cys	Met	Ala	Lys	Pro	Leu	Ser	Val	Arg	Thr	Leu	Leu	Phe	Glu	His	
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40	Cys	Cys	Trp	Pro	Asp	Val	Gly	Gln	Glu	Asp	Ile	Phe	Gln	Leu	Leu	Leu	
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	385					390					395					400	
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5	Glu	Gln	Gly	Ile	Glu	Leu	Tyr	Leu	Arg	Lys	Arg	His	His	Glu	Pro	Gly	
		450					455					460					
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20	Gln	Glu	Leu	Leu	Leu	Gln	Glu	Gly	Gly	Ser	Pro	Lys	Thr	Thr	Thr	Asp	
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35	Pro	Thr	Leu	Leu	His	Leu	Gly	Arg	Leu	Ala	Leu	Trp	Gly	Leu	Gly	Met	
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45	Pro	Asp	Asp	Ile	Ser	Leu	Gly	Phe	Leu	Val	Arg	Ala	Lys	Gly	Val	Val	
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65	Ala	Arg	Leu	Leu	Pro	Thr	Met	Cys	Ile	Gln	Ala	Ser	Glu	Gly	Lys	Asp	
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665

670

5 Ile Thr Ala Ala Phe Leu Ala Gly Leu Leu Ser Arg Glu His Trp Gly
675 680 685

10 Leu Leu Ala Glu Cys Gln Thr Ser Glu Lys Ala Leu Leu Arg Arg Gln
690 695 700

15 Ala Cys Ala Arg Trp Cys Leu Ala Arg Ser Leu Arg Lys His Phe His
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20 Ser Ile Pro Pro Ala Ala Pro Gly Glu Ala Lys Ser Val His Ala Met
725 730 735

25 Pro Gly Phe Ile Trp Leu Ile Arg Ser Leu Tyr Glu Met Gln Glu Glu
740 745 750

30 Arg Leu Ala Arg Lys Ala Ala Arg Gly Leu Asn Val Gly His Leu Lys
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35 Leu Thr Phe Cys Ser Val Gly Pro Thr Glu Cys Ala Ala Leu Ala Phe
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40 Val Leu Gln His Leu Arg Arg Pro Val Ala Leu Gln Leu Asp Tyr Asn
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45 Ser Val Gly Asp Ile Gly Val Glu Gln Leu Leu Pro Cys Leu Gly Val
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50 Cys Lys Ala Leu Tyr Leu Arg Asp Asn Asn Ile Ser Asp Arg Gly Ile
820 825 830

55 Cys Lys Leu Ile Glu Cys Ala Leu His Cys Glu Gln Leu Gln Lys Leu
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850 855 860

65 Lys Leu Leu Ala Cys Arg Gln Asn Phe Leu Ala Leu Arg Leu Gly Asn
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70 Asn Tyr Ile Thr Ala Ala Gly Ala Gln Val Leu Ala Glu Gly Leu Arg
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5 Gly Asn Thr Ser Leu Gln Phe Leu Gly Phe Trp Gly Asn Arg Val Gly
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 15 Gln Ala Leu Ala Leu Met Leu Ala Lys Asn Val Met Leu Glu Glu Leu
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 20 Cys Leu Glu Glu Asn His Leu Gln Asp Glu Gly Val Cys Ser Leu Ala
 965 970 975
 25 Glu Gly Leu Lys Lys Asn Ser Ser Leu Lys Ile Leu Lys Leu Ser Asn
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 30 Arg Asn Asp Thr Ile Leu Glu Val Trp Leu Arg Gly Asn Thr Phe
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10002974 102601

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10	Ala	Phe	Gln	Ala	Gln	Arg	Ser	Gln	Leu	Val	Glu	Leu	Leu	Val	Ser	Gly	
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15	Ser	Leu	Glu	Gly	Phe	Glu	Ser	Val	Leu	Asp	Trp	Leu	Leu	Ser	Trp	Glu	
		50					55					60					
20	Val	Leu	Ser	Trp	Glu	Asp	Tyr	Glu	Gly	Phe	His	Leu	Leu	Gly	Gln	Pro	
	65					70					75					80	
	Leu	Ser	His	Leu	Ala	Arg	Arg	Leu	Leu	Asp	Thr	Val	Trp	Asn	Lys	Gly	
				85						90					95		
25	Thr	Trp	Ala	Cys	Gln	Lys	Leu	Ile	Ala	Ala	Ala	Gln	Glu	Ala	Gln	Ala	
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30	Asp	Ser	Gln	Ser	Pro	Lys	Leu	His	Gly	Cys	Trp	Asp	Pro	His	Ser	Leu	
			115					120					125				
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40	Leu	His	Ser	His	Val	Glu	Asn	Met	Leu	Asp	Leu	Ala	Trp	Glu	Arg	Gly	
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45	Pro	Ser	Gln	Arg	Ala	Arg	Arg	Leu	Leu	Asp	Leu	Ala	Thr	Val	Lys	Ala	
				180					185					190			
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			195					200					205				
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15	Pro	Ala	Thr	Leu	Gly	Leu	Glu	Glu	Leu	Phe	Ser	Thr	Pro	Gly	His	Leu	275	280	285	
20	Asn	Asp	Asp	Ala	Asp	Thr	Val	Leu	Val	Val	Gly	Glu	Ala	Gly	Ser	Gly	290	295	300	
25	Lys	Ser	Thr	Leu	Leu	Gln	Arg	Leu	His	Leu	Leu	Trp	Ala	Ala	Gly	Gln	305	310	315	320
30	Asp	Phe	Gln	Glu	Phe	Leu	Phe	Val	Phe	Pro	Phe	Ser	Cys	Arg	Gln	Leu	325	330	335	
35	Gln	Cys	Met	Ala	Lys	Pro	Leu	Ser	Val	Arg	Thr	Leu	Leu	Phe	Glu	His	340	345	350	
40	Cys	Cys	Trp	Pro	Asp	Val	Gly	Gln	Glu	Asp	Ile	Phe	Gln	Leu	Leu	Leu	355	360	365	
45	Asp	His	Pro	Asp	Arg	Val	Leu	Leu	Thr	Phe	Asp	Gly	Phe	Asp	Glu	Phe	370	375	380	
50	Lys	Phe	Arg	Phe	Thr	Asp	Arg	Glu	Arg	His	Cys	Ser	Pro	Thr	Asp	Pro	385	390	395	400
55	Thr	Ser	Val	Gln	Thr	Leu	Leu	Phe	Asn	Leu	Leu	Gln	Gly	Asn	Leu	Leu	405	410	415	
	Lys	Asn	Ala	Arg	Lys	Val	Val	Thr	Ser	Arg	Pro	Ala	Ala	Val	Ser	Ala	420	425	430	
	Phe	Leu	Arg	Lys	Tyr	Ile	Arg	Thr	Glu	Phe	Asn	Leu	Lys	Gly	Phe	Ser	435	440	445	
	Glu	Gln	Gly	Ile	Glu	Leu	Tyr	Leu	Arg	Lys	Arg	His	His	Glu	Pro	Gly				

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10	Gly Leu Cys His Leu Pro Val Phe Ser Trp Met Val Ser Lys Cys His 485 490 495		
15	Gln Glu Leu Leu Leu Gln Glu Gly Gly Ser Pro Lys Thr Thr Thr Asp 500 505 510		
20	Met Tyr Leu Leu Ile Leu Gln His Phe Leu Leu His Ala Thr Pro Pro 515 520 525		
25	Asp Ser Ala Ser Gln Gly Leu Gly Pro Ser Leu Leu Arg Gly Arg Leu 530 535 540		
30	Pro Thr Leu Leu His Leu Gly Arg Leu Ala Leu Trp Gly Leu Gly Met 545 550 555 560		
35	Cys Cys Tyr Val Phe Ser Ala Gln Gln Leu Gln Ala Ala Gln Val Ser 565 570 575		
40	Pro Asp Asp Ile Ser Leu Gly Phe Leu Val Arg Ala Lys Gly Val Val 580 585 590		
45	Pro Gly Ser Thr Ala Pro Leu Glu Phe Leu His Ile Thr Phe Gln Cys 595 600 605		
50	Phe Phe Ala Ala Phe Tyr Leu Ala Leu Ser Ala Asp Val Pro Pro Ala 610 615 620		
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25	Arg	Leu	Ala	Arg	Lys	Ala	Ala	Arg	Gly	Leu	Asn	Val	Gly	His	Leu	Lys
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5

Leu Arg Trp Leu Ser Leu Val Gly Asn Asn Ile Gly Ser Val Gly Ala
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Gln Ala Leu Ala Leu Met Leu Ala Lys Asn Val Met Leu Glu Glu Leu
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Cys Leu Glu Glu Asn His Leu Gln Asp Glu Gly Val Cys Ser Leu Ala
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20

Glu Gly Leu Lys Lys Asn Ser Ser Leu Lys Ile Leu Lys Leu Ser Asn
 980 985 990

Asn Cys Ile Thr Tyr Leu Gly Ala Glu Ala Leu Leu Gln Ala Leu Glu
 995 1000 1005

25

Arg Asn Asp Thr Ile Leu Glu Val Trp Leu Arg Gly Asn Thr Phe
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Ser Leu Glu Glu Val Asp Lys Leu Gly Cys Arg Asp Thr Arg Leu
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Leu Leu
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